



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Kathleen Clarke
Executive Director

Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

June 16, 1999

Lon Thomas
American Stone
4040 South 300 West
Salt Lake City, Utah 84107

Re: Initial Review of Notice of Intention to Commence Large Mining Operations, American Stone, Heber Quarry, M/051/001, Wasatch County, Utah

Dear Mr. Thomas:

The Division has completed its initial review of your draft Notice of Intention to Commence Large Mining Operations for the Heber Quarry located in Wasatch County, Utah. The initial application was received December 14, 1998. Please accept our apology for the unforeseen delay in completing our review of this notice. After reviewing the information, the Division has the following comments and technical concerns which need to be addressed before tentative approval may be granted. The comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion.

A significant lack of detailed technical information was noted in the permit application. A number of conflicts were also noted between the written text and maps. We have concerns regarding your inhouse ability to provide the required technical information in a timely manner. We strongly recommend that you retain the services of a qualified consulting firm or an experienced, independent mine permitting contractor to assist you in finalizing your mining and reclamation plan. If you decide to hire an outside contractor, we can provide you with a number of possible permitting contacts.

The Division will suspend further review of the Heber Quarry large mining notice until your response to this letter is received. ***Please provide a written response to these review comments within 45 days of your receipt of this letter.*** If you have any questions regarding this review please contact me, Lynn Kunzler, Tom Munson, or Doug Jensen of the Minerals Staff. If you would like to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb

Attachment: Review

cc: Bob Mathis, Wasatch County
m51-01.rvw

REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

American Stone Heber Quarry Mine

M/051/001

R647-4-104 - Filing Requirements and Review Procedures

What is the ownership status of the land immediately South and East of this property? (DJ)

R647-4-105 - Maps, Drawings & Photographs

105.1 Topographic base map, boundaries, pre-act disturbance

There were no hydrologic maps presented which showed the location of existing drainages in the area or the location of well sites. Please provide a map with this information included or shown. (TM)

A topographic map, preferably a full 7.5 minute series quadrangle map, showing the mine location needs to be included with the notice. This map should include all existing and proposed access routes to the mining operation from the nearest publicly maintained highway. (DJ)

105.2 Surface facilities map

The Surface Facilities Map (Map 2, originally produced by the Division) has only been labeled to show an electrical line, two trailers and the tailings (several locations). Please revise this map to show (and label) the location of all surface facilities including, but not limited to: roads, process/facilities areas, any proposed/existing drainage control structures, topsoil storage and/or borrow areas, existing overburden and waste dump areas, any proposed disposal areas for overburden and waste, and wastewater discharge treatment and containment facilities. This map also needs to clearly show the area that will be disturbed by mining operations (both the projected 5-year area and the life of mine areas need to be identified.). (LK)

105.3 Drawings or Cross Sections (slopes, roads, pads, etc.)

The cross sections provided (Map 6) are not adequate. They are not drawn to the scale shown and include inaccuracies. The vertical scale is 0.9 cm/100 feet, the horizontal scale is slightly larger than 1.0 cm/100 feet. The cross section shows a 500 foot elevation difference from the high point to the road level. The applicable topographic map shows only a 333 foot elevation difference between the high point and the road. Please provide an accurate cross section of each quarry area, showing the current conditions. These cross sections need to show at a minimum, the pre-disturbed (estimated) slope, the current slope, and the proposed 5-year projected slope. A typical cross section and profile of the five roads shown on map #5 need to be provided as well. (LK)

The reclamation treatments map(s) needs to show all areas that will be disturbed by mining operations, and identify the specific reclamation treatments proposed for each disturbed area. Areas for which specific variances are requested must be clearly marked, including roads, pads, highwalls and other structures. Please justify why only one acre of 14 acres (page 2 of your plan) is planned to be reclaimed. (LK)

Map #5 indicates 2.55 acres of reclamation, the reclamation surety estimate indicates 0.55 acre of reclamation. A scaled reclamation map must be included with the notice, which will be utilized to determine adequate bonding and reclamation practices. Map #5 is inadequate for calculation purposes. Scaled cross-sections of the proposed mining areas and typical cross-sections of roads to be constructed in the mine area need to be provided. (DJ)

R647-4-106 - Operation Plan

106.3 Estimated acreages disturbed, reclaimed, annually.

The plan is very misleading in terms of acreages and time frames of when the site will be mined and reclaimed. The plan states that it will take 100 years to mine the whole mountain and that the final grade will be essentially level with the road. The concern is the interim reclamation that needs to occur to stabilize areas that will be disturbed as mining progresses. The outcrops created from waste rock will need to be stabilized (the plan does not address how this will be done, i.e., contouring, slope reduction, or topsoiled) and reseeded to prevent erosion and off site movement of sediment. Are the three acres of disturbance mentioned in the plan only related to the outcrops? The bond does not include reclamation of any disturbed areas existing during the interim stages of mining. It appears that this is an oversight that needs to be corrected. (TM)

This section requires an estimate of the area to be disturbed and reclaimed annually. Please provide this estimate in the permit application. A three acre storage area is noted. This area needs to be sited on Map #2. The three acre buffer zone for expansion is not noted on any of the maps. Please update the appropriate map accordingly. (DJ)

The acreages listed in your Notice (page 3) are incorrect. Map 2 shows over 4.5 acres of area that has been quarried (your table lists 2 acres of quarry area). Please review and correct all acreage figures. (LK)

Does the two acres of actual mining include the 1.5 acres of expansion indicated on Map #4? (DJ)

106.4 Nature of materials mined, waste and estimated tonnages

The thickness of the mineral deposit is stated as 2000 feet. What information is this based on? (DJ)

The plan estimates that 2000 cubic yards of ore and 50 cubic yards of overburden will be removed from two acres of projected disturbance. This suggests a very small amount of material being removed from a large area. What is the planned height of each working bench? (DJ)

106.5 Existing soil types, location, amount

Addendum #7, which provides a chemical analysis of the topsoil, shows that the soils are of good quality. However, there is no data which shows the amount of soil available for reclamation. A statement on page 3 of your Notice states: "the soil on the rock quarry is too thin and rocky to recover." This needs to be verified with a soil survey. The Natural Resources Conservation Service

may have completed a soil survey that includes the area of your quarry. A copy of this survey would be sufficient. Otherwise, a soil survey will need to be completed. (LK)

On page 7, Section 110.5 of the plan, it indicates that if additional topsoil is needed for a 6-inch soil cover over the tailings pile (assumed dumps) and quarry area, it will be obtained from an onsite borrow area. Please identify the depth (and volume) of soil available from the proposed borrow area, and show the extent of the borrow area on the facilities map (Map 2). You will also need to provide reclamation plans for the borrow area disturbance. (LK)

If a borrow area is utilized to provide topsoil for this quarry, this will be a part of the total disturbance and needs to be included in the plan. (DJ)

106.6 Plan for protecting & redepositing soils

Please describe how the topsoil that is salvaged and stockpiled will be protected from further impacts and erosion. It is suggested that the area be signed and seeded with a good stabilizing seed mix (a recommended topsoil stabilization seed mix is attached to this review). Please provide plans on how the topsoil will be respread for reclamation. (LK)

In the plan the statement is made that the operator will make an effort to save any appreciable amounts of topsoil encountered. All soils encountered need to be salvaged for reclamation unless the operator seeks a variance, provides justification and DOGM approves of the request. (DJ)

106.7 Existing vegetation - species and amount

The vegetation survey provided does not substantiate the percent ground cover. The data sheets (exhibits 8 and 9) provide sample frequency data, not cover data. From photos of the area and past inspections made by the Division, the percent ground cover is far in excess of the 6% reported. Please provide a copy of the raw data sheets, including a map showing the location of the two transects sampled that would verify the percent ground cover of the undisturbed vegetation adjacent to the Heber Quarry. Please note, if the review of the data sheets does not provide the information needed, you will need to have the vegetation survey redone. (LK)

106.8 Depth to groundwater, extent of overburden, geology

There was a statement under this rule heading that there is no groundwater in the area. A description of the groundwater resources in the area is not included and needs to be described, given the presence of a major groundwater supply for the city of Heber across the road from the site. Please provide the occurrence of all wells and groundwater resources in the area and the depth to the groundwater table in the area. (TM)

106.9 Location & size of ore, waste, tailings, ponds

If the rock is to be stockpiled on site prior to shipment please delineate the proposed stockpile areas on Map #2. (DJ)

Before the tailings/overburden piles are extended out beyond their existing footprint, soils in the impacted area will need to be salvaged. The permit application should be revised to include this commitment. (DJ)

Does the three acre tailings figure indicate the total affected area for the life of the mine, the amount anticipated in the first year of operations, or the first 5-year term? (DJ)

R647-4-107 - Operation Practices

107.1 Public safety & welfare

107.1.12 Disposal of trash, scrap, debris

Given the past history of accidental oil spills and garbage dumping that has taken place at this quarry, please provide a more definitive response describing exactly how any future problems of this sort can be prevented. Also, please provide written verification that the onsite garbage dumping is allowed under county regulations. (TM)

107.1.14 Posting warning signs

This area is very near a public highway and a population center. Warning signs should be posted stating that heavy equipment is being used in the area and that public access is being controlled due to mining in the area. (DJ)

107.1.15 Constructing berms, fences, etc. above highwalls

A plan for protecting the public from having direct access to highwalls in the mine area needs to be addressed. (DJ)

107.3 Erosion control & sediment control

The operation currently does not have any erosion control practices. The plan indicates that none are needed since it is on top of a hill. One area of concern is adjacent to the state highway where runoff from adjacent waste rock piles runs onto the highway. Past inspections have noted debris from these waste rock piles which has occasionally reached the highway. Please address how these concerns will be handled to prevent this from occurring in the future operations. (TM)

107.5 Suitable soils removed & stored

During past inspections, the Division has observed cuts that show considerable soil materials that could and should be salvaged. Topsoil must be salvaged and stockpiled prior to mining operations and protected from further impacts and erosion until it is used for reclamation. The soil survey requested under R647-4-106.5 is needed to predict the volume of soil available for salvage and determine the adequacy of the topsoil stockpile area and the need for topsoil borrow areas. (LK)

107.6 Concurrent reclamation

The Notice does not address any concurrent reclamation to be performed during the operation of the quarry. Please clarify whether there are any areas that can be reclaimed concurrently with operations or whether reclamation will not be performed until the operation is closed. (LK)

R647-4-109 - Impact Assessment

The statement that the entire excavation will be 500 feet long and 80 feet high at mine closure does not agree with the cross-section (map #6) included in your application. Please clarify/correct this discrepancy in the permit application. (DJ)

109.1 Impacts to surface & groundwater systems

The operator has failed to identify all groundwater and surface water resources in the area so an assessment can be made regarding the potential for contamination. There is a potential for surface water contamination given the garbage dumping of the past, the erosion of waste pile outcrops, and the erosion from roads. There is also a well site for the city of Heber across the road from the site. The permit addresses none of this; therefore, this section is considered incomplete. Please revise the plan to address how the mining practices will prevent contaminants from leaving the site? (TM)

109.3 Impacts on existing soils resources

Please see comments under R647-4-106.5, 106.6 and 107.5. (LK)

109.4 Slope stability, erosion control, air quality, safety

The plan calls for no erosion control, but has not fully addressed all the potential sources of erosion (disturbed pad areas, dirt roads, and waste pile outcrops) and their protection measures. Please describe what protection measures will be used on all disturbed areas to prevent sediment from leaving the site. (TM)

The plan indicates that highwalls will be safe and stable at a 60 degree angle over 80' of height. Is there engineering data available to corroborate this statement? Please provide the supporting information used to substantiate this statement. (DJ)

R647-4-110 - Reclamation Plan

110.1 Concurrent & post mining land use

Before the Division can consider accepting a housing development as a reasonable post mining land use, you will need to submit plans for the housing development to Wasatch County and have the plans approved. (LK)

A 60 degree highwall behind a housing development could be disastrous. Please explain what measures will be taken to protect residents of this community. Highwalls left at a high angle will normally experience some rock fall during changing temperatures and precipitation events. Will there be rock-fall fences placed near these areas? Will the highwalls be fenced or bermed to protect the public? (DJ)

110.2 Roads, highwalls, slopes, drainages, pits, etc., reclaimed

The reclamation portion of the Notice assumes that reclamation of the site will occur in five years. Generic plans include sloping highwalls to 60 degrees or less, regrading dumps to a slope of 45 degrees or less, spreading topsoil (or fines) over the quarry floor and dump areas and seeding. The plan states that there will be no impoundments, pits or ponds. There is no detail as to how the reclamation will be accomplished (equipment to be used, depth of soil cover, etc.). Please provide details as to how the reclamation will be accomplished. (LK)

The use of a 7-yard loader to tram an estimated 8000 cubic yards of topsoil an average of 800 feet to the site will require an excess of 1000 cycles. This cost needs to be reflected in the reclamation estimate. (DJ)

110.3 Description of facilities to be left (post mining use)

Before the Division can approve leaving the trailer house and scales (with office), they will need to be approved as permanent structures by Wasatch County (note, Map #2 shows two trailers and no scales. This map will need to be corrected to show all facilities). Please plan for their removal and reclamation of the disturbed area associated with this facilities. Please refer to comments under R647-4-110.1 as well.

R647-4-111 - Reclamation Practices

This section of the Rules was not addressed in your notice. Please provide specific plans which address these rules.

111.1 Public safety & welfare

- 1.11 Sealing shafts & tunnels
- 1.12 Disposal of trash & debris
- 1.13 Plugging drill holes
- 1.14 Posting warning signs
- 1.15 Constructing berms/fences above highwalls

111.3 Erosion & sediment control

Reclamation shall be conducted in a manner that will prevent erosion and sediment deposition off site. This is a factor of surface roughness on reclaimed slopes and erosion control berms at the base of steep slopes. Please provide specific plans for steep slope reclamation to assure that these reclaimed slopes will remain stable following final reclamation of the site. (TM)

R647-4-112 - Variance

Several variances have been requested. Before the Division can approve these variances, the following information is still needed.

Variance #1 - Rule R647-4-107.5. Salvage of topsoil.

Please refer to comments under R647-4-106.5. Until a soil survey is submitted and reviewed which demonstrates that there is no salvageable topsoil, the Division cannot approve this variance. (LK)

Variance #2 - Rule R647-4-111.8. Reclamation of Roads.

Please refer to comments under R647-4-110.1. Please demonstrate how each road is needed for the post mining land use. We must assume that the postmining use will be the same as the premining land use (grazing and wildlife habitat) until the alternative land use plan of a housing development is approved by Wasatch County. Otherwise, all mining related access roads will need to be reclaimed. (LK)

Variance #3 - Rule R647-4-111.7. Highwalls to Remain Steeper than 45 Degrees.

Please provide a stability analysis that demonstrates that the highwalls will have long term stability at an angle of 60 degrees. Also considering the proximity to current residential areas, you will need to provide plans to protect the public from the highwalls, (i.e. berms, benches, fencing, etc.). (LK)

Variance #4 - Rule R647-4-111.13. Revegetation of Highwalls.

This variance is approved for rock highwalls steeper than 60 degrees. However, benches that are wider than 25 feet that may be required for stability and/or safety will need to have soil applied and be revegetated. (LK)

Variance #5 - Rule R647-4-111.6. Regraded Slopes to Remain Steeper than 45 Degrees.

The request for this variance is denied. Any slope greater than angle of repose (approximately 35% or 1.5h:1v) will require an engineered slope design approved by a professional engineer. This was not provided. There are no natural slopes in the area that are steeper than 45 degrees. The steepest slope measured from the topography map of the area is approximately 25 degrees (2h:1v).

R647-4-113 - Surety

The surety estimate provided with your notice does not reflect the reclamation work proposed in your notice or what is required by the Division to meet the standards of the Mined Land Reclamation Act. Please revise this estimate to include costs for all reclamation activities that are planned, or will need to be performed to meet the Division's reclamation standards. (DJ)

R647-4-115 - Confidential Information

No information in the Notice has been identified as confidential.

Recommended Revegetation Species List
for
Topsoil Stockpile Stabilization

American Stone, Inc.
Heber Quarry
M/051/001

Prepared by DOGM May 25, 1999

<u>Common Name</u>	<u>Species Name</u>	<u>*Rate lbs/ac (PLS)</u>
Thickspike wheatgrass	<u>Agropyron dasystachum</u>	3.0
'Piute' orchard grass	<u>Dactylis glomerata</u>	1.5
Ladac Alfalfa	<u>Medicago sativa</u>	1.5
Yellow sweetclover	<u>Melilotus officinalis</u>	0.5
Small burnet	<u>Sanguisorba minor</u>	2.0
	Total	8.5 lbs/ac

Recommended broadcast seeding rate.